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Bird Day, April 17th

Photograph by Guy A. Bailey

Slate-colored Junco at Feeding Station, Geneseo, N. Y.

The Uses of Bird Sound Photography

ALBERT R. BRAND, WHITE PLAINS

The development of sound motion pictures has added another tool to the naturalist's kit. With the perfection of the camera, forty or fifty years ago, it became possible to take home from the field visual impressions of a subject, and thus study it, not only in the field, but in the laboratory as well. Somewhat later the perfection of motion pictures further increased the usefulness of photography. Many facts of bird life, for instance, that had been but guessed at, now could be positively checked. The details of the parasitic habits of the European cuckoo were proved by a series of motion pictures; how the grouse drums, a subject long under debate, was clearly and conclusively shown. In the past few years, photography's use has again been expanded; today not only visual impressions can be recorded, but aural ones as well; for sound recording is, in actuality, sound photography.

Training the Sound Concentrator on a Prospective Subject

It has been my privilege for the past five years to experiment with this new medium for obtaining bird records. With a small sound truck, microphones, amplifiers and sound camera, we have gone into the field and obtained records of the voices of more than 200 species of wild birds. The apparatus was developed at Cornell University, and is similar to the sound half of the machine used by motion picture producers in recording news reels. It is specially adapted for the extremely high pitch of bird sounds; and in addition to the ordinary sound recording paraphernalia, we use what is known as a sound concentrator or sound mirror. It is no easy matter to induce a wild bird to sing into the microphone. The bird photographer, in order to get near his subject, builds himself a blind; the sound recorder uses a sound concentrator instead. This device, a large circular disk, a section of a parabolic curve, has the microphone set at the focal point. With a primitive gun sight the singing bird is brought into the focus of the concentrator, and the sound is greatly amplified by the time it reaches the microphone. All other sounds — and it is practically impossible to record when there is absolute quiet — reach the microphone in much less volume; hence the concentrator is directional in effect. By using this device it is possible to record a bird song satisfactorily anywhere from 250 feet to 700 or 800 feet from the recording truck, depending upon the carrying power of the song of the particular species.

After the sound has been recorded on film, the film is developed in the usual photographic manner. Then the material is available, and can be utilized in several different ways and for several purposes. One of its uses is the making of phonograph records of bird songs. These records are proving to be very valuable for anyone wishing to study birds; for, to the bird student, a knowledge of song is a practical necessity. No one can really be proficient in bird study unless he is familiar with the songs and calls of at least one fauna. In the past this has been one of the chief stumbling blocks in the elementary study of ornithology. Formerly a student often had to spend years, and many days in the field, before he could master the songs of the birds of his region. Now with records available, the study can be pursued in the home or classroom; thus the time element for learning bird song has been greatly reduced.

A medium such as sound film has many possibilities and many uses. Not only can the recordings be made available for the manufacture of phonograph records in what might be termed strictly educational work; but it has been possible, in addition, to build up a library of sound motion pictures of bird life. Dr

Arthur A. Allen, professor of ornithology at Cornell University, has been a pioneer in bird motion picture photography. With infinite patience he has stalked the birds, spending many long hours huddled in a blind; and in consequence he has amassed a collection of interesting and instructive pictures. Many of them were taken years ago, before the advent of sound photography, others were made more recently. All, however, can be used in conjunction with sound recordings. A number of reels of bird sound movies have been made up, and have delighted many audiences. Not only are these reels valuable as pure diversion; they are educational as well and besides serve as excellent propaganda for wild life conservation.

There is a third and perhaps greater use for these recordings. The films offer an objective medium for the study of bird song; we can now examine bird song in a manner quite impossible ten years ago, for on the film is an exact picture of the bird's voice. We no longer need guess at the frequency of the pitch of a song; with the aid of a low-powered microscope we can count it. We have found that bird song, on the whole, is much higher than subjective aural observations had led us to believe; it is also much more quickly timed; individual bird notes are more numerous than had been supposed; a song that sounds as if it contained eight or nine notes has been found to consist of more than 100, many of them of such short duration as to be indistinguishable as separate notes to the human ear. There are indications on the film, as yet unchecked, that some birds sing in a range so high as to be beyond the range of human hearing. Many diverse problems have been opened up by this new objective medium of study. To the serious student of bird song the photographic film offers an almost unlimited field for research.

Lastly, it is possible, by photographic methods, to secure both aural and visual records of species that are fast approaching extinction. Thus in 1935, a joint expedition of Cornell University and the American Museum of Natural History was in the field for six months, photographing and recording the vanishing species of the United States. Pictures and sound of wild turkeys, limpkins, sandhill cranes, lesser prairie chickens, eagles, trumpeter swans, and that rarest of American birds, the ivory-billed woodpecker, were caught by camera and microphone. When and if these birds disappear, we shall have visual records of them, and our ears will be able to recognize their sounds. Certainly if we can not save the birds themselves, it is far more satisfactory — we can understand what they were far better — if we have motion pictures and sound recordings of them than if we had to rely entirely upon the written word and museum specimens.

The Hermit Thrush

ARETAS A. SAUNDERS, FAIRFIELD, CONN.

In the month of April, when spring is beginning to come and the buds are swelling on trees and shrubs, and the first early wild flowers are starting to bloom, we may see a brown-colored bird a little smaller than a robin and of somewhat the same shape. It flies low along the edge of the woods, and lights on a low limb and slowly lifts its tail. If we can get a view of it we see that its back is a plain, somewhat olive brown. Its breast is thickly covered with large, dark spots, and the tail is distinctly reddish in color, quite different from the back. If we can make sure of this last point, it is almost certain that our bird is the hermit thrush, considered by many the finest bird songster in America.

The hermit thrush is not so well known as the wood thrush, for it does not remain during summer near the place where most of us live. In the forests of the Adirondack mountains, in the higher parts of the Catskills, and in the Allegany State Park and some of the other forested hills of that vicinity, it remains for the summer, sings its wonderful song and makes its nest. There are a few other favored spots in New York State where this is true, even one in the center of Long Island, but unless we live or spend the summer near one of these places, we can not expect to see hermit thrushes except in spring and fall; and we can hardly hope to hear the song.

Unlike the wood thrush, the hermit thrush generally builds its nest on the ground. It is in the woods and usually hidden under the leaves of woodland plants or ferns. The nest is made of leaves, weed stalks and bits of moss, and lined with grass, roots or pine needles. If we find it soon enough, it will contain three or four blue eggs, much like robins' eggs but smaller.

Just as people are different from one another, so are hermit thrushes. One bird may be very much afraid of us. It flies away from its nest long before we have reached it and will not return until we have left the spot. Another individual will sit on its nest so closely that we can almost touch it before it leaves. If we sit down near-by and keep very quiet after it has gone, it is likely to come back again.

After the little birds have hatched, both the mother and father thrush are busy finding food for them. If they happen to be individuals that have little fear, we can soon accustom them to us so that, over and over again, they will feed the little birds while we are near. The food is chiefly insects, and often they go to the nest with their bills full of smooth brown or green caterpillars. It is interesting to watch them catch an ant or a moth as they approach the nest, doing it most dexterously and without dropping one of the insects with which the bill is already full.

Evidently it is good for growing hermit thrushes to eat some fresh fruit, just as it is for humans, and so the parents now and then give the young a bright red shadbush berry or a few pin cherries. When the little birds are rather well grown and their eyes are open and the brown feathers begin to show, they are sometimes fed on salamanders.

While the young are in the nest the father bird evidently is too busy to sing. But when they are finally grown and have left the nest and learned to take care of themselves he will sing again, just as he did before the nesting started. Then if we go to the place where he sings some evening after the sun has set and the western sky is tinged with a pink afterglow, we shall hear the pleasing song over and over again and be glad that among the many beautiful things of Nature there are hermit thrushes.

In Warbler Time

GUY A. BAILEY, GENESEO STATE NORMAL SCHOOL

Photographs by the author

A good time to take a "roll call" of the warblers is that week in May when apple bloom is prime. Pick a day after a rain that is warm and still. Start with the rising sun for a neglected orchard, with a hedgerow of bushes piled with brush. Sit down on a log or stump. Sit still. Watch and listen. Use your glasses if you must but watch closely and quietly.

If you are early enough you will find the warbler world at breakfast. How busy they are and unconcerned! They sing as they eat. They may fly to a bough over your head. Here they peer in among leaf clusters and even into the blossoms. They pick at things, live things so small that you can not see them. What tastes so good to them may turn out to be something that disgusts you. Remember, however, that it is the warblers' feast you are attending. They are hosts and hostesses, and mere people are the curious lookers-on.

Really, why are they so clamorous! The secret is out. Tiny little "worms" only a few

Female Redstart Feeding Young Cowbird

Blackburnian Warbler, Tully, N. Y.

days old are tearing away at leaves no older. The warblers enjoy these dainty morsels. Plant lice, starting on that endless multiplication that might give them the earth, are devoured by thousands. Hosts of little tree pests give way before the hungry band of warblers that prey on them from sunrise to sunset.

Not only are warblers good for us because they help trees to bear better fruit but they delight our ears with dainty songs and our eyes with flashes of choice colors.

As we view the warbler winged parade, we might think of their eventual summer homes. Although they are side by side in the old apple tree in May, by July we would need a map of North America to locate them. Possibly one, the yellow warbler, may build a nest in the self-same apple tree we are talking about but the blackpoll warbler may be nesting in a balsam tree in northern Quebec. The Maryland yellow-throat may have a nest in a marsh next to the old orchard, while the myrtle warbler may be feeding its young in a little spruce in Ontario. In the near-by woods we may find the nest of the chestnut-sided warbler in a hazelnut bush, but we may hunt along the tree-lined banks of a hundred streams before we find the hollow limb that holds the secret of the prothonotary warbler. In a big swamp a hundred miles away may be the nest of the mourning warbler, safely hidden by the sprawling leaves of a skunk cabbage, but to find the nest of a Blackburnian warbler we might have a long trip to Cape Breton Island. The redstart may be feeding a young cowbird in a near-by wood-lot wholly unaware that a trick is being played, but the magnolia warbler may have her own young in a nest at the shore of Lake Placid. The deep woods a mile away may be resounding to the "*Teacher, Teacher*" of the ovenbird while the domed nest is hidden in the forest floor. The golden-winged warblers may be in a colony fifty miles away. Here are all the warblers of this kind for many miles around.

Suppose we should take a "roll call" of the warblers in the winter season. To do this we need a map of both North America and South America, even some of the outlying islands. Here are winter addresses of a few:

Blackpoll warbler	Brazil
Mourning warbler	Colombia
Redstart	Ecuador
Ovenbird	St Thomas Island
Maryland yellow-throat..	Bahamas
Chestnut-sided warbler..	Panama
Blackburnian warbler ...	Peru
Black-throated blue warbler	Key West, Florida
Magnolia warbler.....	Mexico
Golden-winged warbler..	Guatemala
Prothonotary warbler...	Nicaragua

Golden-winged Warbler, Howlands Island, N. Y.

How Fast Does a Barn Swallow Grow?

DAYTON STONER, STATE ZOOLOGIST, NEW YORK STATE MUSEUM

Photographs by the author

The barn swallow is one of the commonest and most generally distributed of New York State swallows. Every farm boy is familiar with the bird, and many city dwellers, too, know "the swallow with the long, forked tail."

In spite of the prevalence of this bird, much still remains to be learned about it. How many laymen, or professional ornithologists for that matter, know the average weight of the adult barn swallow, or how rapidly the young increase in weight or the rate at which the nestlings and their feathers grow or the average temperature of the bird at any stage of its existence?

Among other things, these matters have occupied my attention and that of Mrs Stoner during a portion of the past two summers.

Time and space here forbid the presentation of the detailed studies made on all of the more than 60 young barn swallows occupying 14 nests in the vicinity of Albany. Instead, I have selected the records of a single nestling, one of a family of five, as typifying the situation for the species as we have observed it.

Mud Domicile of a Pair of Barn Swallows. Note Mud of Two Shades Used in its Construction.

General observations, temperature readings and measurements were made on alternate days from the time this bird hatched on June 2, 1934, to the time it was about ready to leave the nest on June 18th. All but one of the young in this family were banded with the regulation United States Biological Survey numbered bands but, for the sake of brevity, we shall refer to the subject of this discussion as "Nestling X."

Rate of weight increase. Nestling X hatched from an egg weighing 1.8 grams, the approximate equivalent of the weight of a half page of this Bulletin.

At the time of our first observation (10.50 a. m., June 2d), this barn swallow had been out of the shell six to eight hours and weighed 1.9 grams. During the following 12 days X's weight increased gradually at the approximate average rate of 1.5 grams daily. Its maximum weight of 20.3 grams was attained on June 13th; after this the weight gradually but *slowly* declined until, on June 18th, it had dropped to 18.8 grams. This is somewhat less than the average weight for adult barn swallows and is equivalent to about one-half that of this Bulletin.

We find, therefore, that the weight of the young barn swallow at the time of leaving the nest is somewhat less than the average for adults which, a few days earlier it exceeded.

Rate of bony growth. With increase in weight comes also a corresponding development of bony structure. For example, the length of the tarsus or lower leg of Nestling X increased from 3 millimeters (roughly ⅛-inch) on June 2d, to its maximum, 10.5 millimeters (a little more than ⅜ of an inch), on June 15th. The ulna, that part of the forearm which bears the secondary flight feathers, increased from 5 millimeters to its maximum length, 26 millimeters, in 12 days, or at the average daily rate of approximately 1.8 millimeters.

Rate of feather growth. Let us now consider the rate of feather growth as compared with weight increase and bone growth. This discussion will treat only of the situation with respect to outer primary (wing-feather) and outer and middle tail-feathers.

Ordinarily the outer primary first appears as a minute, bristle-like structure at about the fifth day. When Nestling X was six days old this

Adult Banded Barn Swallow and Young

feather measured 7 millimeters. In the following five days the feather increased in length to 29 millimeters, while in 17 days it had attained a length of 50 millimeters; in other words, the outer primary of this barn swallow had grown at an average daily rate of 4.3 millimeters. The most rapid growth rate, however, occurred between the tenth and twelfth days, when an increase of 16 millimeters was recorded.

During growth the vane or web of the feather is contained in a horny tube or sheath, from which it gradually bursts as the feather increases in length. The distance that the vane extends beyond the sheath at different ages varies somewhat but usually corresponds closely with the rate of feather growth. This distance is proportionately greatest between the fourteenth and seventeenth days. In Nestling X it was 14 millimeters at 17 days, 10.5 millimeters at 14 days and 7.5 millimeters at 12 days.

Ever since I have known the barn swallow I have wondered how the outer pair of tail-feathers came to be so much longer than the inner pair, thus accounting for the characteristic deeply forked condition of the tail in the adult.

Both these sets of tail-feathers occur as minute points about 1 millimeter in length on the fifth day. Our measurements show that the length of the outer tail-feathers increases at a slightly more rapid rate than the middle ones. Thus, the *outer* tail-feather of Nestling X increased in length from 1 to 37 millimeters in 17 days, an average of 3 millimeters a day, while in the same period the *inner* tail-feathers increased from 1 to 32 millimeters, or at an average rate of 2.5 millimeters a day.

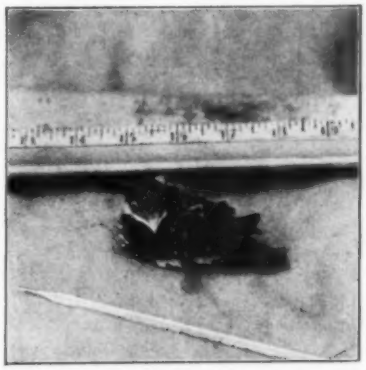
It is to be observed in this connection that the average rate of increase in length of the outer tail-feather is *less* than that of the outer primary.

Rate of increase in body temperature. During this period of rapid increase in weight, and body as well as feather growth, how does the *temperature* of the young barn swallow respond?

As a group, birds are warm-blooded — even hot-blooded animals; their bodily functions are carried on intensively; their temperature is high. The temperature regulating mechanism of the unfeathered young in the nest is not so well developed, however, as that of the adult. So the latter broods the nestling until its feather covering is thick enough to retain a goodly amount of the heat that is generated as one of its bodily activities.

In spite of this brooding by the adult the average body temperature of one-day old birds is lower than that of ten-day old individuals, while that of the latter is lower than the average for adults of the species. In other words, just as the weight increases and the bony, feather and other structures develop with age, so also does the average degree of body heat rise until the more or less variable but higher temperature characteristic of the adult is attained.

All our temperature records of barn swallows were secured by means of a specially constructed, non-self-registering mercury ther-



Fledgling Barn Swallow; Also Mercury Thermometer Used in Obtaining Temperature Readings

mometer thrust well down into the stomach of the bird. And, in the case of all young up to six or more days of age, the adult was flushed from the nest immediately preceding our visit.

At 11 a. m. on June 2d, the body temperature of barn swallow Nestling X registered 96.4° Fahrenheit. On June 18th, its temperature registered 107.8°. Intermediate dates and records are as follows: June 4th, 99.6°; June 6th, 103.8°; June 8th, 104.6°; June 11th, 104.0°; June 13th, 104.8°; June 15th, 106.8°. Readings on other members of this family, and additional families as well, substantiate these records for the respective age groups indicated.

Data on adult barn swallows. For *adult* barn swallows our averages for the weight and types of measurement discussed in this paper are as follows: weight, 19.63 grams; length of tarsus, 9.83 millimeters; length of forearm, 24.25 millimeters; length of outer primary, 102.75 millimeters; length of outer tail-feather, 80.0 millimeters; length of middle tail-feather, 44.75 millimeters; temperature, 107.04° Fahr.

Conclusions. Our records show that the average temperature of young barn swallows increases a little more than 11 degrees in 17 days and that the rate of increase is most rapid during the first five to six days of nestling life.

Further, in the young barn swallow, the rate of increase in weight, temperature and growth of body structures, except feathers, appears to be greatest during the first ten days of nest life. For a time thereafter, or until flight ability is attained, metabolic activities are directed principally toward the production of feathers.

The Eastern Least Bittern

ALLEN FROST, POUGHKEEPSIE

Photographs by the author

Woodland and open marshes afford perhaps as much interest biologically as any other type of terrain. They certainly are of unusual interest ornithologically.

In one moderate-sized swamp immediately outside the city line of a good-sized city we have had much of interest to attract us to it.

The purple loosestrife or rebel weed has claimed much of it but there are still many areas of cat-tails and the common tussock grass so general in the Hudson valley. A small area of second growth timber — mostly gray birch and maples — is just north of the swamp, and one section is a mass of speckled alders and willows.

In this swamp and the areas immediately surrounding it 65 species of birds have been found during the nesting season, and of these a very large number have been found at or on their nests.

When we found the American bittern's nest with four eggs we decided to watch it and photograph the young. The last day of our work on these young, one left the nest and ran through the cat-tail reeds. My companion followed it and instead of catching the American bittern, found a nest with the adult eastern least bittern upon it.

He was naturally enthusiastic about his find and we attempted to work up to the nest taking pictures through the reeds as we went.

Adult Least Bittern at Nest Containing Egg and Downy Young Not Long Hatched, June 21, 1933

My previous experiences with eastern least bitterns had been varied. In "Crugers Island marsh" I had found a bird that I could catch a glimpse of only with difficulty. It would invariably leave the nest when we were a considerable distance away. Another individual in the same marsh would crouch in its typical defensive attitude until we were about six feet from it, then fade backward off the nest.

Adult Least Bittern "Freezing" behind Nest Containing Four Downy White Young, June 24, 1933

Another example, however, proved to be of a still different make-up. At about four feet from the nest, to which spot we had approached most carefully, we stopped and slowly and carefully spread the reeds until we had a clear view of the bird on the nest. I took several pictures and before leaving I found that I could touch the bird without her leaving the nest. Not wishing to frighten her we left to return three days later.

When first found the nest had two eggs and two downy chicks. When it was visited the second time, four chicks were sitting up and taking notice. This time we approached more boldly, but still carefully, and set up our camera only three feet from the nest.

I took pictures of both adult and young, and then to see how great her protective instinct was I laid my hand gently on her back; immediately she raised herself pressing hard against my hand for fear I might force her down upon her chicks. Finally to remove her from the nest, which no gentle prodding or pushing would do, I had to take her in my hand and lift her off. When put back she assumed her defensive attitude at the back of the nest but refused to leave.

Our next visit to the nest was two weeks later, and at our approach all four young left the nest and climbed rapidly through the cattails. Later they were seen fully matured at the other end of the marsh.

This was an experience that both my companion and I thoroughly enjoyed and I am glad I was able to obtain a photographic record of it.

". . . I Laid My Hand Gently on Her Back," June 21, 1933

The University of the State of New York
Bulletin to the Schools

Issued semimonthly during the school year by the State Education Department

CHARLES F. PROBES, *Editor*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 5 cents for single copies.
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MARCH 16, 1936

Activities of the National Association of Audubon Societies

JOHN H. BAKER, EXECUTIVE DIRECTOR

Since November 1, 1934, there have been added to the staff of the National Association of Audubon Societies six young men, widely known as ornithologists with active field experience. Roger T. Peterson, author of the popular Field Guide to the Birds, and a talented artist, is now in charge of educational activities. Warren F. Eaton developed an intensive protective campaign in behalf of hawks, owls, fish-eating birds and so-called vermin; his recent death is a great blow to the association and to conservation of all wild life. William Vogt has become the editor of Bird-Lore, which the association now owns, and is devoting much time to the problems concerned with reclamation and drainage as affecting wild-life habitats. Alexander Sprunt jr is now supervisor of southern sanctuaries and also does educational work in schools in the South. Allan D. Cruickshank is educational representative of the association on Long Island. Lester L. Walsh is acting as my personal assistant and is in charge of development of the visual education program. These men possess energy, drive, experience and enthusiasm.

We are now guarding 286,400 acres, on which there are 303 nesting colonies, with 56 principal species, concentrated in 147 areas in 36 sanctuaries; these dot the Atlantic and Gulf coastal areas from Maine to Texas. We have brought back the snowy and American egrets and white ibis to abundance in the South. We are making splendid progress in the restoration of the roseate spoonbill and the reddish egret. We are striving now, through actual guardianship, to save from extinction the great white heron, the ivory-billed woodpecker and the glossy ibis as North American birds. We are protecting, among others, ducks, geese, petrels, pelicans, guillemots, terns, plovers, oyster-catchers, skimmers, puffins and, in Florida, cranes, burrowing owls and caracaras.

We have revamped the leaflet material for the Junior Audubon Clubs. These have a fresh outdoor approach and are attractively illustrated with pen and ink drawings by Mr Peterson; they continue to include four-color plates and outline drawings. This school year the club member enrolment is running at a rate approximately double that of the comparable period a year ago. Attractive prizes are being offered both to teachers and youth leaders and the club members who participate in contests conducted by the association this school year.

Recognizing, as a result of experience with these clubs, the need of adult training in nature appreciation and in methods which have been successfully used in conveying sustained genuine interest to children, we have inaugurated a camp plan to effect that purpose, and are establishing the Audubon Nature Camp at the Todd Wild-life Sanctuary in Maine this coming summer.

We are carrying on militant campaigns for the preservation of an adequate breeding stock of waterfowl and for appreciation of the valuable rôle of predatory species and so-called vermin, against which there is widespread prejudice reminiscent of the days when men believed in witches.

At our 31st annual meeting many other groups interested in wild life preservation participated. Field trips were conducted. It is our hope and belief that these annual conventions will serve a very useful conservation purpose.

The Audubon Association stands for the preservation of wild life for its own sake, as well as for its social, recreational, spectacle and material values. Our job is to fight such forces of destruction as erosion, pollution, wasteful lumbering, overgrazing, excessive hunting, engineering projects destructive of wild-life habitat, invasion of wilderness areas and political appointments to federal and state conservation agencies.

The Roosevelt Bird Sanctuary

EUGENE SWOPE, OYSTER BAY

Photograph by the author

The 12 acres that comprise the Roosevelt Bird Sanctuary at Oyster Bay, Long Island, lie on three sides of the cemetery where Theodore Roosevelt is buried, and are the basis of a memorial to him. In a special sense the sanctuary is a memorial to the impetus Roosevelt gave to the bird sanctuary movement. In the early years of the Audubon activities successful bird sanctuaries were established, but they were known and appreciated by few other than conservationists. When Theodore Roosevelt, as President, took an interest in the bird sanctuary method of conservation and established 52 federal reserves, he lifted the movement from obscurity to public attention and public approval.

This sanctuary has, for the 12 years of its existence, been undergoing a slow process of development. In the main, this consists in gradually replacing the flora that has little sanctuary value in the way of furnishing cover, nesting places or food, with trees, shrubs and vines known to have a high sanctuary value in these particulars.

A scientific plan has, in the main, directed the replanting of these grounds, but there has also been an element of sympathetic understanding of avian likes and dislikes that went along with science as a guiding principle.

Only 14 species of birds nested in the sanctuary in 1924, its first season. That was before protective measures were fully established or any new planting had been done. In 1925, when protection against trespassers and bird enemies was becoming effective, 21 species nested there. Then in 1935, after nearly half the sanctuary area had been conditioned by replanting, 34 species nested; and 162 nests were located and identified. This increase gives some idea of how birds respond to safe and suitable environment.

The Roosevelt Sanctuary is owned and administered by the National Association of Audubon Societies. That part of the grounds designated as the Court of the Fountain is open daily to the public from April 1st to November 30th. Admission to the main part of the sanctuary is assured only by appointment. The best methods of bird protection, and of encouraging their increase, are not only studied, but are practised here. Advice to any interested in this form of conservation is freely given. The sanctuary serves as an out-of-door school for bird study. Only small groups are encouraged to visit the sanctuary for this purpose. Large groups invariably have a disturbing element.

Feeding Station in the Roosevelt Bird Sanctuary

A "Dime-in-the-Slot" Telescope, and What It Revealed

GUY BARTLETT, SCHENECTADY

Photographs by the author

Early last spring a hiker, spending the day at John Boyd Thacher Park and along the Helderberg escarpment, was attacked by a large hawk.* The bird did not actually strike him, but it repeatedly swooped at him. Local bird students were of the opinion that the hiker had been near the nesting site of the duck hawk, or peregrine falcon. For years duck hawks had been seen in various parts of their wide-flung hunting territory, and it seemed certain the nest was along the escarpment; but the aerie was yet to be found.

A few weeks later some bird students covered the identical trail that had been followed by the hiker, but they neither saw nor heard the hawk. Within a few days they returned, confident that the hawk would not have attacked without reason. Climbing to a vantage point in the woods near the foot of the cliff, they could see much of the "cat-walk" along the face of the vertical cliff. This cat-walk, about half-way up the cliff, recedes into the face of the escarpment and for short distances offers foothold to hardy climbers; but it does not give one an opportunity to walk its entire length. The investigators concealed themselves and awaited developments.

Soon they heard the shrill chatter of a bird flying in from across the wide ravine. In another few moments the bird appeared, in the open space toward the escarpment. In its talons it carried a bird, probably a meadow lark. It was the duck hawk, so close that all its distinguishing characteristics were immediately evident. Again the hawk screamed, and this time its mate answered. Then the second bird, slightly larger and so presumably the female, flew into view. The birds banked in flight and, unfortunately, were then lost to sight behind intervening trees. Quickly the male was again in view, this time with empty talons. Whether he had been relieved of his prey by the female in flight or had taken it to the nest himself and quickly departed could not be seen. With more shrill screams he flew across the ravine toward his hunting grounds. The female was heard once more, apparently not far away, and then all was quiet.

The birders ascended the hill to the foot of the cliff and investigated the possibilities of climbing to the cat-walk. It was quickly apparent that the nest could be reached from there only with difficulty, if at all. It was not possible to see along the cat-walk, and feathers were strewn along so much of the base of the cliff that they did not assist in locating the aerie exactly. A dead tree projecting over the top of the escarpment was noted, and the birders made a circuitous trip to reach the top.

The "Cat-Walk" of the Helderberg Escarpment Is Barely Visible as a Horizontal Dark Line along the Face of the Exposed Cliff

The dead tree was quickly located from above, and the men approached it. Suddenly the scream of the Helderberg falcon was heard. The female zoomed up from

* One chapter in the life of the Helderberg falcons was told by Edmund J. Sawyer in the Bird Day Bulletin of April 1, 1930. Another account of these duck hawks was presented in the Bird Day issue of last year. This is still another episode in the life of the birds.

the face of the cliff and alighted hardly 20 feet away, on the tree that had been picked as a landmark. In another moment she dived into flight across the ravine, still screaming her rage and fear. Over the ravine she was met by her mate, and together they circled in the distance, screaming much of the time and not approaching the aerie.

An attempt was made to inspect the cat-walk ledge from above, but there was so much overhang to the escarpment that this was impossible. There was not time enough to return to the base of the sheer wall that day, but there would be a holiday within a few days, and hence more time in which to attempt the climb.

"It Did Not Approach Too Closely"

On Memorial Day a vantage point was selected on top of the escarpment across the wide ravine, and a tripod-mounted, 40-power, portable telescope was set up. Minutely the observers studied every foot of the cat-walk on which they felt sure the aerie was located. The half-mile jump across the ravine — if a half mile is not too wide for a ravine — was apparently beyond the power of the telescope. It failed to reveal the details of the ledge.

Not many feet from the bird group had been set up a high-powered (100x) telescope, ready to receive the dimes of those who would look at the State Office Building and other landmarks in Albany, at still other prominent structures in equally distant Schenectady, and at the various mountain ranges discernible in the remote distance. The large telescope was swung around toward the cat-walk, pointed at the ledge, and a dime dropped into the box. Immediately a shutter swung out of the way within the instrument and a clockwork mechanism started its tick-tick-tick. Slowly the eyepiece was adjusted, and the cat-walk jumped into sharp focus. The sun was shining directly on the ledge, and there was no difficulty in seeing even the clumps of grass and the small piles of rocks on it.

Suddenly a bird appeared in the field of view, dropping from above. There it stood on the ledge, and even the dark mustache marks that characterize the duck hawk could be seen. By chance the telescope had been pointed right at the nest. The hawk stood still a few moments, and then bent its head down to its talons. It raised its head, reached forward, and lowered its head again, this time back of a low pile of sticks. Again it reached to its talons and to the back of the sticks. In its talons was food, and back of the sticks were the young hawks. The parent bird stood erect for a moment, looking over the ravine, and then — click! The shutter in the telescope dropped, and the tick-tick-tick of the mechanism was silenced. "Your three minutes are up. Deposit another ten cents, please!" it might as well have said.

Another dime was immediately dropped into the coin-box, and each of the three observers had an opportunity to observe the bird at its nest. Unfortunately the young could not be seen behind the pile of sticks, although it did seem at times as though heads were thrust up into view. Another dime was spent, and photographs of the nest site made with the telescope serving as a super-telephoto camera lens. The parent bird was no longer at the nest when the picture was made, but the photograph did show the location of the aerie.

Two of the birders then descended to the foot of the cliff, confident that they could locate the nest. With a scream one of the peregrines appeared and at high speed dived toward them. It did not approach too closely, however. Quickly the one hawk was joined by its mate, and together they swept back and forth over the ravine, constantly screaming. Occasionally they were close to the would-be cliff-climbers, and numerous photographs were obtained of the birds in flight.

A possibility of climbing the cliff presented itself. Grasping a little cedar that had its roots buried tenaciously in the crumbled rock dust and thin soil on the ledge, and pushed up over one sheer part of the ledge by his companion, one of the birders reached the cat-walk. All that remained, according to calculations, was to squeeze along the cat-walk for 15 feet or so to the right. But the climber immediately found a nest, only a half dozen feet to his left. In a little recess in the ledge was a pile of sticks and stones, just as revealed by the telescope. In addition there were feathers and other remains of meals; but there were no young duck hawks. The nest was abandoned.

It was hard to understand how the nest could have been so suddenly deserted. A signal from the third man, back at the telescope, gave the explanation. The nest was to the right; the climber had stumbled upon the nest of a previous year.

Slowly inching his way to the right, along the curving ledge, the climber rounded the first corner, advanced a few feet more, and then was blocked. There was not even a semblance of a cat-walk around the next corner. He was within a dozen feet of the nest, but could not see it. The falcons had chosen well in selecting the site for the aerie.

Three days later the group returned to the scene, this time with a rope long enough and strong enough to hold a climber when it was anchored to trees on top of the escarpment. It was too late, however; the young had flown. High overhead one of the parent birds soared, paying no attention to the visitors; no longer were the hawks enraged by cliff-climbers.

* * * *

Had the climber known then what he later read in a magazine, he might not have climbed, unarmed, along such a precarious path. In the October 1935 issue of *The Auk*, G. B. Hendricks, of Pittsfield, Mass., related an account of a visit to a duck hawk's nest on the cliffs of Monument mountain in Great Barrington, Mass. That nest was much easier than usual to reach. Cuts and scratches on head and neck were dealt to four persons who descended to the aerie, and even a camera was dented in the assaults of one of the infuriated parent birds.

Whose Bird Banding?

C. HUBER WATSON, ANDOVER

Photograph by the author

While chatting with Farmer Alvord one day recently I chanced to pull out from my pocket an aluminum bird band which has been a choice pocket-piece of mine for the past three years. I frequently take out that bit of metal and look at it, conjuring up in my mind the places where it has been and the scenes which it may have "observed" in its 2000-mile flight. For that bird band was carried from my home town in western New York State to Texas by a marsh hawk. Band No. 542479 it is listed in the Bureau of Biological Survey files. I placed it on a fledgling marsh hawk in June 1932. On September of that same year a hunter in Waco, Texas, killed this bird, reporting the band number to Washington. Subsequently that man sent me the band. To me it is a souvenir eloquent not only of the marvels of bird flight and migration but of the great possibilities in bird banding.

But what of Farmer Alvord? When he caught sight of that small bit of aluminum, which I held in my hand, he asked brief, pointed questions. "A bird band?" "The Government has them put on birds?" "You don't say?" "All bands should be reported?" "You're sure there is no fine for killing a bird with a band on it?" —— and many other questions which gradually told me a story as plainly as concrete statements would have done. *He* had at some time killed a bird bearing a band —— possibly one of my own "engagement rings" —— and he had been afraid to report it.

The next day I called at the Alvord farm home and asked to see the bird band which he found. From its resting place in an old-fashioned teacup, on the parlor what-not, where it was keeping company with family mementos, came the band. And from Farmer Alvord came the story.

The previous winter crows had been bold enough to come and eat near his barn, where he fed his hens. Disliking crows as most farmers do, he had at several times shot into the group of birds to frighten them away. One day he found the remains of a crow not far

A Banded American Bittern; Downy Young in the Nest

distant, evidently the victim of one of his shots. On the right leg he spied a small band. Out of curiosity he took it home. Curiosity gradually yielded place to uncertainty and fear soon replaced uncertainty. It was a happy privilege I had of dispelling this cloud of fearsome ignorance by giving a short account of the bird banding system with which we are so well acquainted.

* * * *

Each Bird Day Bulletin for several years has contained one or more articles about bird banding. Some of these have considered banding operations of game birds only; some have given interesting returns which certain banders have had; all have been remarkably informative articles. It would seem that all New York State residents, at least, must be entirely familiar with this method of bird study and that another article on banding must be superfluous. I believe there is one phase of the subject, however, which has received far too little attention.

To the writers of all the articles mentioned above and to most students of bird life the banding of birds appeals as being one definite aid in learning more about our feathered friends. We have talked about it for years among ourselves; have written articles about it; have perhaps lectured about it. But in all of this apparent publicity have we stressed the vital importance which the boys and girls of the land play in the process? Have we not, unintentionally, given the impression that bird banding is exclusively the property of the mature nature students and that the group of people who hold banding permits are the only ones responsible for gaining valuable information about bird life through this system of banding?

In my opinion much more should be said about the dependence which the banders feel on the cooperation of all boys and girls, as well as on other "lay workers." The placing of bands on the legs of birds will be only wasted effort unless there are sharp eyes, and many of them, watching for the bands. Of course, some returns are made when birds are caught in the traps of banders, but only a small fraction of bands will ever reappear this way as compared with those that will be reported when the number of watchers-for-bands has been greatly increased.

Even though it may not be possible for each community to have a licensed bander or any one definite person to give out the desired information, it would seem to me a fine idea if teachers in the schools and various civic organizations could educate the young people to the truth that they can do fully as much or more to help in this work as do the ones who put on the bands. A lively publicity campaign could bring this about.

Just one more thing. For 14 years I have held a banding permit. I have not been in a position to spend much time at this fascinating work each year but still I have banded enough birds to yield the thrills of some very interesting returns. I have told many persons about these and I have talked before many groups about bird banding, stressing the importance of cooperation. Yet I am constantly amazed at the ignorance and superstition which attend the finding of a band on a dead bird. The first idea seems to be that this particular bird was the private property of someone and that the band is an identifying mark, as bands on pigeons are known to be. Hence, having a band in one's possession might be considered a sign of guilt. Several times when I have been told that some person in my community had shot or found a bird bearing a band, I have gone to that person to get what information I could, and to make sure that it was reported to Washington. Frequently I have had to use "third degree" tactics in order to learn a thing. This is just another phase of the work which needs the light of wide publicity.

A Yellow Warbler's Tall Nest

ALBERT R. SHADLE, UNIVERSITY OF BUFFALO

Photograph by the author

On a sunny May morning, while enjoying an early morning bird walk, I had come to one of my favorite spots, a low, semicircular wooded ridge known locally as "The Hogback." The west side and crest of the ridge were well covered with hardwoods and on the eastern side lay a dense, water-filled, bushy marsh, from which came a continual chorus of frogs. On the brown forest floor and here and there in the edge of the marsh, bright patches of wild flowers contributed that touch of color and that fragrance so characteristic of spring.

The birds were in full song and the arduous labors of nest-building and preparations for new families of feathered songsters were everywhere in evidence. In a small clump of gooseberry bushes near the edge of the swamp, two yellow warblers (*Dendroica aestiva aestiva* Gmelin) were very active and apparently somewhat disturbed by my presence. A few minutes of quiet watching revealed their secret. About 18 inches from the ground, in a gooseberry bush, I located their nest, in process of construction. Returning five days later I found, to my surprise, that the nest had been built to twice the usual height. A glance at the interior of the nest explained the reason for its peculiar shape.

Cowbirds (*Molothrus ater ater* Boddaert) were very common and were constantly in evidence in the vicinity. These birds do not bother to build their own nests, but lay their eggs in the nests of other small birds and depend upon these foster parents to hatch and rear the young cowbird. This usually is done at the sacrifice of the foster parents' own offspring.

A careful examination of the nest revealed the following interesting history. Before the yellow warbler had completed her nest, a female cowbird had laid her own egg in it. The cowbird's egg is considerably larger than a yellow warbler's egg. When the warbler returned with more nesting material she found this large egg in her nest. She continued to add material to the sides and floor of the nest and had nearly buried the first egg in the nest bottom when

Nest of Yellow Warbler with Several Floors and Containing Several Cowbird Eggs

she again returned and found a second and a little later a third cowbird egg in her nest. Each time the warbler continued to bring more nesting material, striving valiantly to cover up these undesired eggs, and prepare her nest for her own use. A fourth, fifth and a sixth cowbird egg were laid and when they were nearly buried, a seventh one was added. By this time the nest had been built to twice the normal height and its bottom was a very thick mass of cowbird eggs and nesting material. At this point the little warbler gave up the task and abandoned her nest. Five of these eggs are visible in the picture of the dissected nest, but two are completely out of sight.

A few feet from the first nest she began to build a second one. Again she chose a gooseberry bush and started the second nest less than two feet from the ground. She had a good foundation built when I discovered the plight of her first nest. Yes, I too have often wondered what success she had with her second nest, but I was called to another location and was unable to carry out my intention of watching her progress and aiding her in her unequal contest with the larger bird.

"It is an ill wind that blows nobody good," so we are told, and here it again proved true. The nest and eggs were now abandoned by the bird, so I carefully cut off the branch in which it was built and took it back to my laboratory. There I made a dissection of the nest and learned much of the story of what happened between my first and my second visits.

A Morning with the Birds in Northern New York

ALICE WILLIAMS, STATE NORMAL SCHOOL, POTSDAM

The sun was tipping the tops of the trees as I hurried down the tree-lined streets of Potsdam, to meet about 20 other bird enthusiasts for a trip to the woods. The combined trip and breakfast was to begin promptly at 5 o'clock and to last for each individual according to his desire and free time. Although in a hurry, I stopped to watch the courting dance of a pair of flickers. Then I hurried on. I have been making these bird trips for five years and have learned to look for a flicker at this particular corner. If I see one, I take it as a good omen for the day; if not, I go on, feeling I have missed one friend I really wanted to see.

The night before, four nighthawks had circled above the river and swooped and zoomed as they ate their evening meal. This we regard as a sure sign that summer is very near or even here.

On meeting, we first compared notes on what we had already seen in the bird world. A Baltimore oriole had lustily sung his song near one girl's window. A crow had made a big "to do" as one boy left his home, while a courting pair of robins had almost succeeded in keeping two individuals from joining the trip at all. A girl who had driven five miles through the country to join the group reported meadow larks, bluebirds and song sparrows.

Then we began the trip proper. We crossed the bridge to a little island, on which stands a pretty sandstone church. Back of the church we stood silent and still watching a small thicket of shrubs that grow straight out of the water.

Soon we were rewarded. A slight hopping, and there gazing fixedly at us was a female red-winged blackbird. She was so near we could see the soft rosy place on her wing. Bird glasses were promptly focused upon her. Soon a movement farther back in the thicket caught our attention. Then came a clear rollicking song and with a slight change in the position of glasses, we saw a purple finch. We stood silent, listening for quite a while. A little later we spied the female. We hoped she thrilled to the gay song as we did.

A persistent hammering caused us to leave the bank and come in toward the center of the island. What was our delight to find a flicker busily excavating a hole about 40 feet up in an elm tree! Glasses were focussed on her but she gave no heed to our presence.

Our attention was finally called away by a clear twittering near the river. Reluctantly we left the churchyard and at the street found about 20 tree swallows sitting on the wires. Their steel blue backs glittered in the early morning sun and their underbodies seemed dazzling white.

The next call was a clear "*Phoebe*" and there on a low wire fence sat the little gray fellow. Glasses were turned on the wings to

give an added check to the call. A few rods away up on a telephone wire we saw the olive-sided flycatcher. It was an excellent chance to compare the two little cousins, but phoebe seemed to object for he soon left us.

Now we began following the bank of the river. We were inland about three rods with a thicket of young trees and much underbrush on both sides. It is a veritable haven for birds. First we met the yellow warblers. There were four and they looked like joyous sunbeams as they flitted about in the woods, or, overcome with curiosity, sat high in a tree and gazed at *us*. Next, two redstarts darted across our path. Startled, we froze to our places lest by some careless move we should cause them to flee. High above our heads, they darted back and forth. In the early light the color marks looked really scarlet, though in the bird-skins at school they seem merely orange.

Here the path turns toward the river. Out on a point, the usual procedure of an outdoor breakfast was followed, but before the fire was up, a red-winged blackbird hovered over the water. The sun was now high enough to make balls of fire on his wings. Entranced, we watched until the bird flew back into the thicket. While eating, we heard the hoarse rattle-like call of the kingfisher. We looked just in time to see him dart into the river and back with a fish in his beak. The rough crown, the white collar, the flash of blue-gray, were all unmistakable.

After breakfast we left the river and came to a large field. At the edge of the field, we stopped to watch the courting of a pair of yellow warblers in a thorn tree.

The field is a favorite of the bobolinks and we were not disappointed. They sprang from the grass on our approach. They led us gaily over all the field. When we stayed quiet, one perched on a small twig and gaily sang for us. One soared from the ground and, since our backs were to the east, we clearly saw his light back and black underparts. A meadow lark also came and showed us his brilliant yellow breast and jet black "v."

Those who had 8 o'clock classes left us here. The rest of us crossed the field. In shrubs at the edge we saw a ruby-crowned kinglet. On the other side of the road, a tardy white-crowned sparrow ran and hopped along the fence. We wondered why he was here so late.

Within the stone fence is an old estate. We entered the gate and were greeted about ten rods in by a dull gray bird sitting about 15 feet from the ground and gaily singing. We listened entranced until he ended with the familiar cat call.

A hammering sound next met our ears and we soon found the friendly downy woodpecker. A white-breasted nuthatch was running up and down a near-by trunk. Chipping sparrows seemed to be everywhere. A red-eyed vireo sang in a tree and a brown creeper carefully inspected tree trunks.

Our path next led through a sunny meadow. Here we paused to watch four meadow larks rise, settle and strut. The sun turned the yellow breasts to gold. We passed an old red barn, above and around which a whole flock of brilliant barn swallows swooped, dived and sailed. We watched for a minute, then hurried on, over a stone wall and into a woods.

It was quiet, damp and still. The warning call of a blue jay struck our ears, a flash of blue and white, and we seemed alone in the woods. We scattered and sat on logs or stumps. Then we began the true bird lover's watch. First we heard the call of a black-throated green warbler. Our quietness put his fears to rest. Busily up and down the trunk he flitted. He was soon joined by his mate. We could hear the tapping of a hairy woodpecker and soon spied him on a near-by tree. In the distance we could hear the call of the blue jay.

Then suddenly came the clear, "*Teacher, Teacher*" of the ovenbird.

Stealthily we moved from log to log. Long we sat and waited. Finally an excited though controlled gesture from one group caused us to steal up slowly and cautiously. There, walking up and down an old log, was the jaunty little bird.

As though only too well aware of our profession, he called, "*Teacher, Teacher, Teacher.*"

We started back, over a stone wall, passed a plowed field where killdeers gracefully soared and on to a shady estate, pausing briefly to heed the call of a flicker and to watch a chickadee preen.

How bright and hot the streets were after the quiet woods! As soon as we were again under the great elms of our little town we heard the plaintive call of the wood pewee. It continued throughout the day as a pleasing reminder of our day's gay beginning.

The Rise and Fall of a Tern Colony

ROY LATHAM, ORIENT, LONG ISLAND

Photograph by the author

Prior to 50 years ago there was an extensive colony of common terns breeding on Long Beach, Orient, Long Island. So vast was this colony that it extended the entire length of the three miles of beach and spilled over onto the tip of Orient Point at Plum Gut. The roseate tern and laughing gull also nested on the beach. The roseate terns nested among the common terns in suitable covers. The laughing gulls had a restricted nesting locality on a gravel flat between salt marshes.

Then came a period of oppression, for the terns had become the subject of a commercial traffic, which so depleted these beautiful seabirds along the Atlantic coast that the colony in Orient was absolutely annihilated by 1890. Thereafter 25 years elapsed without a breeding record in the Orient region. With the enactment of proper protection, the common tern responded, an immediate increase was apparent, and in 1915, after the 25 years' absence, one pair of common terns nested in Orient. In the following year, 1916, three pairs nested; in 1917, 28 pairs nested. Three years later, in 1920, five hundred pairs gave the colony a firm foothold on their former breeding ground. By 1925 the numbers had increased to two thousand pairs, and the first roseate terns nested there. The increase became rapid thereafter, and reached its maximum numbers in 1932 with approximately six thousand pairs of common terns, thirty pairs of roseate terns, and five pairs of piping plovers. The old-time strength of the colony was returning again, and the nesting area was expanding eastward along the beach.

But, alas, this colony, which in 25 years had grown to be the largest on Long Island, was not to endure in its seclusion miles from an automobile road. Its presence was known to comparatively few people, even in its native township. At this time of its maximum abundance and interest, the beach was accepted for a state park. It had been a free shooting-ground to the local community since its first settlement in 1640.

Few predacious creatures could survive the raking the hunters gave the beach during the open season for game. No terns, of course, are present on the beach during the open hunting season, as is also true of the 35 pairs of ospreys, the large colony of black-crowned night herons, and most of the other species of birds which nest there. The control of the territory by the park commission automatically prohibited all hunting and shooting on the beach.

Nest and Eggs of Common Tern, Orient, Long Island Colony, 1932

What apparently was to be beneficial to wild life in this prohibition, however, proved to be strikingly disastrous to the colony of terns, which had received no molestation during the breeding season. Trouble developed among the terns the first summer after the beach had been acquired by the commission. The second season after shooting ceased, conditions not only became serious, but demoralization spread throughout the nesting area. Destruction became so great among the eggs, young and even adults, that the colony, to the last bird, abandoned the nesting-ground while the breeding season was only half over. Not a tern was seen around the breeding-ground again that summer. Special protection for the birds also meant special protection for the red fox, *Vulpes fulva*. The beach had become a safe rendezvous for these sly beasts, and they have

accordingly multiplied to destructive numbers and have found delectable foraging among the terns. The activities of the foxes was the turning point which marked the downfall of the tern colony in Orient, and the decline was a notable one. The roseates did not reappear after 1932. Five hundred pairs of common terns ventured back in 1933, but probably did not rear a single young to maturity. In 1935 the colony had been reduced to one hundred unsuccessful pairs.

The tern colony in Orient is undoubtedly doomed to complete extinction for a second time within 50 years. Small colonies of terns at Three Mile Harbor, Flanders and elsewhere in this region, are vagrants from the once magnificent Orient colony. Others from this colony probably have been naturally incorporated into the colonies on Gardiner's island, Shelter island and other islands in this vicinity.

Drives have been promoted against the foxes in the Orient Beach Park, and several of these mammals have been killed. Evidently the original plans for protection were not well conceived, with the result that the terns eventually must disappear from the Orient beaches as completely as did the colony at Peconic a decade ago with the permanent encroachment of man too close to the seclusion of their appointed colonization.

In Quest of the Piping Plover at Sandy Pond

HAZEL R. ELLIS, KEUKA COLLEGE

To those living in city or dormitory, where everything seems to be ordered to the convenience of humans, it is a revelation to go to a place where birds and other forms of life have dominion. Unfortunately, there are not enough such places accessible to those who have learned their value. When life becomes a little too crowded with things to be done, however, one can often retire a bit into a memory-land and enjoy again the refreshment that comes from a day spent away from the haunts of man.

As I sit by an open window and listen to the drumming of a downy woodpecker on a near-by pole and wonder how long it will be before the snowdrifts, now losing their lovely curved lines and pristine whiteness, will have vanished, there flashes back to my mind one of those rare June days when I first saw the piping plover.

So let us outstrip the mad March winds and forget the recurring reminders that winter has not quite receded into the background. Let us go to the summer land. Do sand dunes with their scrubby growth of trees and shrubs and fleshy, low-creeping herbaceous plants, well-separated by warm, sharp sand help you recapture the picture? Perhaps it takes a picnic basket with pleasant companions to help some of us back to such a habitat as I wish us to visit for a little while.

Those of you who know the fun there is in increasing your bird list can understand to what distances one will go and at what early hours one will rise to add another bird to that list. This is especially true if the bird is a rare one.

Two years ago I heard that the piping plover was nesting at Sandy Pond, New York. Since the bird does not appear on my check list for birds of central New York, and since it is not pictured in Eaton's Birds of Central New York, I at once began to inform myself. I learned from the text of Birds of New York that there were occasional records of the bird in the central part of the State up until 1900. Furthermore, Eaton remarks that it undoubtedly bred in former years along Lake Erie and Lake Ontario. Doctor Chapman says in Birds of Eastern North America that it is rather common on Long Island. And, "As a breeding bird [it is] now rare and man's increasing encroachment on its haunts threatens it with extinction as a summer resident in our Atlantic States." So, with my zest at its zenith, I arose before dawn and went with a companion to seek this rare little plover.

How vividly I can call back the trenchant sand that a strong wind continually blew in our faces, and the vigorous waves that helped us row across the bay to the strand. Then our reward and species number 173 for me that year! Before we had beached our boat a mature plover was discovered, running at amazing speed along the very edge of the sand. I think that, if it had not been for the spanking of water against the boat and the thunder of the breakers, we would have heard the high, sweet piping before we saw the bird. How well it

is named! I believe the Pied Piper could not have made a lovelier sound.

It is not an altogether easy task to see this small bird, which is the whitest of our plovers. It is the color of dry sand, and the black ring about its neck and the black band on the forecrown do not help in detecting it; rather they seem to dismember its head and make it less birdlike. Nor is it easy to keep the little "spirit bird" in sight, for it does not often fly up but runs in and out among the sand dunes in a most phantom-like fashion.

Photograph by Verdi Burtch

Nest and Four Eggs of Piping Plover, Sandy Pond

After searching a time for nests, we discovered that those that had been marked by previous visitors had been covered by sand and so destroyed. On a flat area that had been strewn with small water-rounded stones, we all but stepped on a nest of four eggs. One hesitates to call it a nest, for there is only a slight depression in the sand with not a bit of protection from the sweeping sand and the water that at times breaks over the beach. The eggs were remarkably like the stones as to color, size and shape.

We looked in vain for young birds but it was not until the next year that I saw them. On that trip we found several nests of eggs and banded many young. The little birds were like downy, dwarf chicks. As one of the party said, they were only slightly larger than bumblebees.

On my second trip the wind was still and the sand lay quiet so the piping of the birds made a sense impression that I hope I shall never forget. Such a clear, pure sound! Over our heads were scores of common terns constantly scolding and threatening us as they darted at us when we neared their nests. It was not so difficult to locate the terns' nests, for by their noisy excitement, they undid the good work that instinct had done in directing them to lay their eggs in depressions made among the pieces of driftwood that helped to conceal the eggs from the eye. I wonder sometimes at the contradictions in Nature. Perhaps what attracts the attention of some distracts and confuses others, and so the battle to survive goes on.

It would be a pleasure to tell you about some of the other birds that we found nesting there, such as the spotted sandpiper that builds in little hummocks of sedges and willow, and the black tern that builds its nest on decomposing vegetation among the cat-tails in the shelter of the bay. There are the little green heron, the American bittern, least bittern, sora, Florida gallinule, coot and long-billed marsh wren; all of which inhabit the marshy places and are most fascinating to the quiet observer. Suppose *you* tell the rest of the story. Find the nearest marshy habitat and learn what these birds do in their homemaking activities. If you live near a sandy beach on Lake Ontario or Long Island, perhaps you have seen the piping plover, or beach bird, as it is sometimes called. If you have not seen our little friend, I hope that you will sometime have the privilege.

Acknowledgment

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Gulls over Gotham

JOHN F. KUERZI, NEW YORK

Gulls seem to be a feature of every coastwise city. They certainly add charm and beauty to the waters and upper air of Manhattan. At almost any hour of the day they may be seen soaring on shimmering wings, at great heights over the canyons of lower New York. If the weather is fair their silvery bodies complement the sea of blue through which they effortlessly sweep. If foul, they are as apt to be racing before the storm, true denizens of the deep. Their calls and cries seem to voice the exquisite loneliness of the sea and to carry a tang of down-east saltiness to the very heart of the big city.

Summering to the north of New York, herring gulls descend lustily upon the city with the advent of cold weather. By November they swarm about the lower bay and harbor and frequent the rivers and seacoast in large numbers. One of their favorite habits is to follow ferryboats that ply across the bay. Everyone sees them and regards them as real cosmopolites. But their real identity is not always respected. Witness a conversation overheard on the deck of a boat: "Them's foine pigeons," remarks an Irishman to a bystander. "Not pigeons, Sir, gulls," is the reply. "Well, Sir, gurls or boys, they're foine pigeons."

These herring gulls are not, however, all beauty and loveliness. They feed largely on waste matter — all sorts of flotsam and jetsam and, like many a human vagrant, greatly relish a "hand-out." In the severity of recent winters, they abandoned all larine decorum and in large cohorts invaded the city dumps on the outskirts of the metropolis. No subway crush or cafeteria crowd could have been more self-centered. There the rule of every man for himself prevailed. The hungry birds swarmed about every particularly "rich" spot on the dump and should any one of their number unearth some especially "choice" morsel, his erstwhile companions immediately surrounded him. But it was all done in a kind of good-natured camaraderie — if they were all herring gulls. Should there happen to be with them, as often occurred, a glaucous gull — that big, white fellow from the Arctic — and should he decide that the morsel was his, a real battle was apt to ensue. Old Burgomaster is fond of making his presence felt. But these winter scenes in which hungry birds play leading rôles, are fun to watch and afford interesting psychological studies of *Larus argentatus* at close quarters.

The whole tribe of gulls is a good lot. There is something majestic about a lone black-backed gull, riding an ice floe down the river; something thrilling about the rare white gulls from the Far North; something infinitely dainty and appealing about the little Bonaparte's gulls, so ternlike and lovely in a balmy April breeze. In summer the cry of the laughing gull magically whisks one to some lonely strand in the South. We grant you all that. But far and above that soars the herring gull — a he-man bird, master of the sky and sea, a real beauty, with a voice redolent of the sea, of the frowning headlands and rock-bound coast of the Northeast and of the great blankets of mysterious fog and storm which characterize that rugged land of Evangeline. Unlike most of the other gulls, the herring gull does not stand aloof. From the time of his arrival in October or November to the day of his departure in spring, he becomes a true New Yorker. He knows the city and becomes a part of it. There are few finer sights than a flock of these big, silvery fellows wheeling about on a cold morning when the very river itself steams. They ride the gales that lash the city and in the evening may be seen streaming in a kind of formation across a reddening sky to their roosting place far out on the heaving swell that is Long Island sound.

Gulls are considered important scavengers, but our feeling is that they are at their best as messengers of good will, cheering many a human strangely alone in the midst of great crowds. They are an accepted part of every large seaboard city and add immeasurably to that intangible something, the pulse or heart-throb, call it soul, if you will, of a great city like Manhattan. May they long continue to soar high above its dark canyons and glide on flashing wings over its waters.

Sanctuary Birds

BY J. LANSING CHRISTMAN, DELANSON

Enumeration of bird species is becoming more popular in eastern Schenectady county. Species are being listed in the vicinity of the county seat by Schenectady bird students. At the same time, species on the Christman Bird and Wild Life Sanctuary, located about 12 miles southwest of Schenectady, are being listed. New species are being reported from time to time. Rare visitors come within a short distance of the farm in the valley which has been dedicated to birds and wild life.

Spring probably yields the largest number of bird visitors, but not the largest number of residents. Summer leads all seasons in lists of resident birds. While about my regular work as a farm hand on the sanctuary during a recent summer, I devoted considerable time to the check of birds' nests there. At the same time, several others kept a keen watch for nests on the 100-acre farm. A total of 89 nests was found. Probably as many as 25 more were not discovered.

The check revealed that robins lead all other species of birds nesting on the sanctuary. That species had a total of 21 nests. Chipping sparrows were second, with 12 nests. Two of these were deserted. Two others were accidentally destroyed in June by blister rust men pulling gooseberry bushes. The nests were not discovered until the eggs had been thrown out. Phoebes took third place. These birds had nine nests. The majority were located on the shelving rocks along Bozenkill creek. Phoebes have often attempted to build on the veranda of the Christman home. This idea has been discouraged, however, because they are most untidy birds.

Barn swallows ranked next, with seven nests. Always they afford joy for the bird observer in harvest time, dashing in and out of the barn while haying is under way. The vesper sparrow, the field sparrow and the song sparrow had five nests each. Three starlings' nests were noted, and were destroyed, for starlings have proved to be a menace to our native songsters on the sanctuary. During winter their companionship is looked for but in the spring and summer they are not wanted.

Two nests each were observed of the following: killdeer, bluebird, house wren, red-winged blackbird, red-eyed vireo, crow and spotted sandpiper. Mourning doves, cedar waxwings and Baltimore orioles had one nest each. A nest of Cooper's hawk also was noted.

Of the two nests of the killdeer plover, one was accidentally destroyed during the summer while a farm hand was cultivating corn, and although the plovers made a great commotion for some time, the nest could not be found until the horse had stepped on it, and crushed the eggs. Observers on the sanctuary rarely report the finding of a killdeer's nest, for their eggs so much resemble the ground in appearance that the nest can not be discovered easily. It is usually built in a small depression in the ground, with little lining. The nest discovered in the corn field, in fact, had no lining at all.

Baltimore orioles generally have several nests about the farm, in the drooping branches of the creek elms, and frequently in the door-yard elms.

From mid-December to February bird life on the sanctuary is at its lowest ebb. Usually not more than 15 species are reported there during that time.

The regular winter residents commonly observed are: downy woodpecker, hairy woodpecker, white-breasted nuthatch, chickadee, tree sparrow, goldfinch, blue jay, crow, English sparrow, song sparrow, ring-necked pheasant, bobwhite, brown creeper, starling and the ruffed grouse.

After each snow a song sparrow or two will come to the bird feed in front of the kitchen window and dine with the tree sparrows. The brown creeper is seldom reported as a winter resident, but for a week or more one came to the dining tables. When the snow disappeared, the brown creeper disappeared too. Bobwhites were introduced on the sanctuary during a recent summer. Never before were they included in the bird lists here. A northern shrike, rarely seen here, was observed on an adjoining farm during early winter. Robins and meadow larks also have been seen near-by. Often they are numbered with the winter residents on the sanctuary.

Birds and a Blizzard

CHARLES J. SPIKER, BRANCHPORT

During the last part of January, up-state New York was visited by the most severe winter storm that had been known here in several years. Country roads were blocked for weeks; enormous drifts followed all fences and hedgerows; and for several days terrific winds from the west swept the fields and made zero temperatures more penetrating. In woods and sheltered ravines the snow did not pile up in drifts, but a succession of storms throughout the winter left a foot or more of snow on the level.

Thus both in field and wood the natural sources of food supply for many species of birds were buried for several weeks. As a result, these birds, some of them naturally shy or wary, sought the shelter and hospitality to be found about homes and farm buildings. During the afternoon that the blizzard was at its height, wind howling about the corners of buildings and snow swirling everywhere, four horned larks and a snow bunting, species of the open fields, fed for two hours at the barn door where litter from the barn floor had eddied out into the wind. The larks were present on but one day, but snow buntings to the number of 50 came at different times within the next few days and fed on the seeds of weeds protruding their dead stalks through the snow of the garden.

At threshing time last fall I had scraped up the "cleanings" from under the separator and had stored them in bags to be used in winter feeding. These cleanings were almost entirely weed seeds, those of summer grass or fox grass composing the large part. After the storm I scattered these seeds at different points about the place, and they were soon found by large flocks of juncos and tree sparrows. These winter birds are commonly found about hedges and brushy ravines, but the food shortage in such haunts had driven them out into the open.

In carrying feed from the granary to the henhouses, I had dropped small amounts of buckwheat, wheat, barley and cracked corn from time to time. A couple of days after the blizzard, we looked out to see a flock of a dozen ring-necked pheasants about the door of the granary, eating for a second or so, then looking about suspiciously, "taking their joy with bated breath." They came daily so long as the weather was severe, but never overcame their natural fear of man, and as soon as a door was opened at the house, away they would fly, not to return for an hour or more.

While the storm brought us some interesting visitors, it at the same time drove others away. One of the common birds about the place until the storm came was the goldfinch, not golden, as in summer, but arrayed in the drab hues which he wears in winter. Although I have seen these birds feed on the ground, they prefer to cling to the stalks of weeds and extract the seeds for themselves. As the drifting of the snows continued, the ordinary weed stalks left standing in the fields were finally covered, leaving nothing for the birds to explore, with the result that they disappeared, and I saw none at all for more than three weeks. As soon as the thawing snows had settled sufficiently to expose the old weed stalks, goldfinches returned.

I would suggest to farm boys and girls, and to 4-H clubs, that they sack up the cleanings from the threshing floor in the fall and put them away to scatter for the birds when the hard days come in winter. The little effort involved will be amply repaid when the birds come to twitter their apparent gratitude at this forethought.

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